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Derwent Title: **Production of epitaxial layer for dynamic random access memory comprises preparing substrate having single crystalline and insulated regions, growing epitaxial layer on single crystalline region and partially removing epitaxial layer**

Original Title: ☒ **DE19941147A1: Epitaxieschicht und Verfahren zu ihrer Herstellung**

Assignee: **INFINEON TECHNOLOGIES AG** Standard company
Other publications from [INFINEON TECHNOLOGIES AG \(INFN\)](#)...

Inventor: **BENZINGER H; FAUL J; KARCHER W; PUSCH C; SCHREMS M; TEMMLER D;**

Accession/Update: **2001-212223 / 200203**

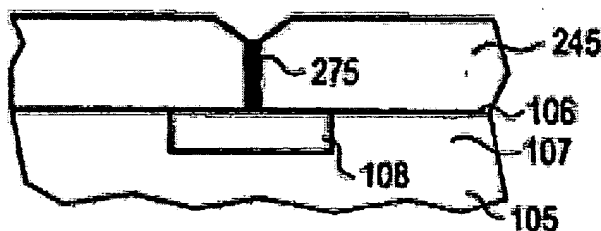
IPC Code: **H01L 21/8242 ;**

Derwent Classes: **L03; U11;**

Manual Codes: **L03-G04A**(Semiconductor memory elements) , **L04-C01**(Epitaxial growth of semiconductor layers) , **L04-C12**(Insulating and passivating layers - general) , **U11-C01J1**(Epitaxial growth of semiconductor layer) , **U11-C05B9A** (Planarisation/protection)

Derwent Abstract: **(DE19941147A) Novelty** - Production of an epitaxial layer comprises: preparing substrate (105) having a single crystalline region (107) and an electrically insulated region (108); growing epitaxial layer (245) on the single crystalline region; and partially removing the epitaxial layer.
Detailed Description - Production of an epitaxial layer comprises: preparing substrate (105) having a single crystalline region (107) and an electrically insulated region (108); growing epitaxial layer (245) on the single crystalline region, in which the electrically insulated region is partially grown laterally by the epitaxial layer and forms an epitaxial closing joint (275); and partially removing the epitaxial layer above the electrically insulated region so that the epitaxial closing joint is partially removed.
Preferred Features: The epitaxial layer is removed by anisotropic etching. The single crystalline region consists of silicon and the electrically insulated region consists of silicon oxide.
Use - The method is used in the production of dynamic random access memory (DRAM) cells.
Advantage - The epitaxial layer is reliable.

Images:



Description of Drawing(s) - The drawing shows a cross section through the epitaxial layer. Substrate 105, Single crystalline region 107, Electrically insulated region 108, Epitaxial layer 245, Closing joint 275, **Description of Drawing(s)** - The drawing shows a cross section through the epitaxial layer., Substrate 105, Single crystalline region 107, Electrically insulated region 108, Epitaxial layer 245, Closing joint 275 Dwg.9B/9


Family: PDF Patent Pub. Date Derwent Update Pages Language IPC Code

☒ **DE19941147A1** * 2001-03-22 200122 18 German H01L 21/8242

Local appls.: DE1999001041147 Filed:1999-08-30 (99DE-1041147)

☒ **US6326262** = 2001-12-04 200203 17 English H01L 21/8242

Local appls.: 00192000S-06514 Filed:2000-08-30 (2000US-0651492)

 **INPADOC** [Show legal status actions](#)
Legal Status:

 **First Claim:** [Show all claims](#) 1. Verfahren zur Herstellung einer Epitaxieschicht mit den Schritten:

- – Bereitstellen eines Substrats **105**, an dessen Substratoberfläche **106** zumindest teilweise freiliegend ein einkristalliner Bereich **107** und zumindest ein sich daran anschließender elektrisch isolierender Bereich **108** angeordnet sind, wobei der elektrisch isolierende Bereich **108** zumindest teilweise von dem einkristallinen Bereich **107** umgeben ist;
- – Aufwachsen einer Epitaxieschicht **245** auf den einkristallinen Bereich **107** der Substratoberfläche **106**, wobei der elektrisch isolierende Bereich **108** zumindest teilweise von der Epitaxieschicht **245** seitlich überwachsen wird und sich oberhalb des elektrisch isolierenden Bereichs **108** infolge des Überwachsens eine epitaxiale Schließfuge **275** ausbildet;
- – Zumindest teilweises Entfernen der Epitaxieschicht **245** oberhalb des elektrisch isolierenden Bereichs **108**, so daß die epitaxiale Schließfuge **275** dabei zumindest teilweise mitentfernt wird.

 **Priority Number:**

| Application Number | Filed | Original Title |
|--------------------|------------|----------------|
| DE1999001041147 | 1999-08-30 | |

 **Title Terms:** PRODUCE EPITAXIAL LAYER DYNAMIC RANDOM ACCESS MEMORY COMPRISE
PREPARATION SUBSTRATE SINGLE CRYSTAL INSULATE REGION GROW EPITAXIAL LAYER
SINGLE CRYSTAL REGION REMOVE EPITAXIAL LAYER

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